Joan Johnson-Freese

TRANSITIONING TO A SPACE & AIR FORCE: MOVING BEYOND RHETORIC?

Abstract

Efforts within the Air Force to integrate its two primary components, air and space, have yielded - at best - slow and dubious results. Many space advocates and analysts assumed that the vital role space played in the Gulf War would result in space being recognized as warranting an equal position with the air component of the Air Force, if not the creation of a separate service. Although rhetoric has seemed to support those assumptions, actual progress has remained slow. In this paper, the role played by organizational culture as an inhibiting factor in integration is examined. Education, as both an element of culture and an indicator of organizational commitment, is also considered. The trials of "teaching" and integrating space into an already existing structure at the senior Air Force Professional Military Education (PME) institution, the Air War College, is examined as illustrative. The conclusion reached is that the current environment is not conducive to integration, and that rhetoric will likely continue to outpace substantive progress, with potentially negative result.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE (DD-MM-YYYY)	2. REPORT TYPE	3. DATES COVERED (From - To)
01-04-1998	Research	

4. TITLE AND SUBTITLE
Transitioning To A Space & Air Force: Moving Beyond Rhetoric?

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Dr. Joan Johnson-Freese

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

HQ USAFA/DFES
USAF INSS
2354 Fairchild Dr., Ste 5L27
USAF Academy, CO 80840

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

HQ USAFA/DFES
USAF INSS
2354 Fairchild Dr., Ste 5L27
USAF Academy, CO 80840

HQ USAF/XONP
1480 AF Pentagon, Room 5D518
Washington, DC 20330-1480

10. SPONSOR/MONITOR'S ACRONYM(S)
HQ USAFA/DFES, HQ USAF/XONP

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT

A Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT

Efforts within the Air Force to integrate its two primary components, air and space, have yielded – at best – slow and dubious results. Many space advocates and analysts assumed that the vital role space played in the Gulf War would result in space being recognized as warranting an equal position with the air component of the Air Force, if not the creation of a separate service. Although rhetoric has seemed to support those assumptions, actual progress has remained slow. In this paper, the role played by organizational culture and an indicator of organizational commitment, is also considered. The trials of "teaching" and integrating space into an already existing structure at the senior Air Force Professional Military Education (PME) institution, the Air War College, is examined as illustrative. The conclusion reached is that the current environment is not conducive to integration, and that rhetoric will likely continue to outpace substantive progress, with potentially negative result.

15. SUBJECT TERMS
Space, Air, Professional Military Education, USAFA

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			DR. JAMES M. SMITH
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED UNLIMITED	26	19b. TELEPHONE NUMBER (include area code) 719-333-2717

TRANSITIONING TO A SPACE & AIR FORCE:

MOVING BEYOND RHETORIC?

> The Air Force, as a young organization that owed its very existence to modern technology, was also the most logical of the services to embrace new technology such as satellites and long-range rockets. But at the same time, the Air Force was also dominated by the culture of the manned strategic bomber, and any new missions often had to serve this culture. Thus, the concept of strategic rocketry was not one that was adopted readily or without resistance by the Air Force.[1]

Air Force Secretary Sheila Widnall and Chief of Staff General Ronald Fogelman adopted a long range policy in 1996/97 which included a mandate to shift the Air Force from an 'Air and Space Force' to a 'Space and Air Force.'[2] It was the critical role of space during the Gulf War, that war even being referenced as "the first space war," which initially generated recognition of the need for a switch in priorities. Acknowledgement of the clear ascendancy of space as the dominant military force multiplier already, and the likelihood of its increased importance, quickly followed. Indeed in the 1998 Joint Strategy Review report prepared to help guide the strategic direction of the nation's military forces by the Pentagon's Joint Staff, space was assigned a key role. According to the report, "control and use of space, as well as the supporting information-related technologies that undergird this capability, are expected to be increasingly important in military operations by the United States and potential adversaries beyond 2020."[3]

The switch in priorities from air and space, to space and air, has also, however, been recognized as one that could take decades. The head of both Air Force and U.S. Space Command, General Howell M. Estes II, told an Air Force Association audience in 1997 that the potential for warfighters would "never be realized unless his service

underwent a painful 'cultural change' in which space flight operations gained as much importance to the rank and file as aeronautics and aviation."[4] With marginal exceptions though, a case could be made that little progress beyond the rhetorical has been made regarding space being both subservient to and superseded by air power. There seems even to be difficulty (either by reluctance or inability, or both), truly integrating "space" into the Air Force as a tool, an operational mission or an aspiration.[5]

Indeed in the fall of 1997, the terminology of Air Force documents and rhetoric was changed again. Rather than changing from "air and space" to "space and air," Air Force planning and implementation efforts were simply to henceforth employ the term "aerospace."[6] Although officially argued not to be a pullback on commitment from the air and space integration effort, some analysts point out that using "aerospace" combines two fields which when separated yield metrics not always favorable toward indicating equal emphasis. In other words, it circumvents the "when are we there" question.

It will be the purpose of this article to examine how organizational culture has inhibited the intended integration and to evaluate the chances of increased substantive integration in the future. Education, as both an element of culture and an indicator of organizational commitment, will also be considered. The difficulties that academia has encountered integrating space into curricula also points out the inherent difficulties that any organization can expect when integrating a multidisciplinary field into an already existing structure. Finally, the issue of whether space ought to be separated into an independent service will be reviewed.

THE AIR FORCE & SPACE: HISTORY

In all fairness, it should be pointed out that in the 1950's the manned bomber was a proven technology whereas the inter-continental ballistic missile (ICBM) was not. Therefore the Air Force's institutional penchant for favoring the bomber can be viewed as pragmatic and prudent. Indeed it has been argued that "the majority of Air Force leaders believed ballistic missiles should undergo a step by step development, followed by integration into the weapons inventory."[7] Whether they should be integrated as a primary system or as a back-up system was likely either not debated or merely assumed to be the latter.

The pace of the step-by-step development of space systems was not a matter of particular concern to the Air Force until after the launch of *Sputnik.* The gauntlet thrown to the United States by the Soviets with *Sputnik* resulted in NASA being created largely for the cosmetic, political purpose of declaring to the world the "peaceful" nature of the U.S. space program to contrast with that of the Soviet program. While NASA served that mission well, military service parochialism over this new area of strategic interest quickly took hold. In fact part of the reason that the missile technology had not been proven earlier can be attributed to inter-service conflict over roles and missions, and because the Air Force had not shown itself particularly interested prior to *Sputnik* in pursuing the necessary work involved.

> ...the Air Force demonstrated more interest in gaining and preserving its prerogatives than moving ahead with a strong missile research and development program. Paradoxically, as the Air Force's commitment to develop an ICBM diminished, its determination to be designated sole authority responsible for long-range missiles increased.[8]

Space took a back seat to air power in the early days of Air Force history, and has been fighting to come forward ever since.

It is also important to recognize that historically, space equated to missiles in terms of organizational consideration, fiscal support and doctrinal reckoning. Missiles had a built-in tie to the then-dominate Strategic Air Command (SAC) and emerging national nuclear strategy. Those who wanted to develop spacecraft and launch vehicles recognized the benefits of riding missile development coattails because of the funds allocated in that area and the common technology shared. They also, however, recognized the differences between the two areas, including missiles not being optimal for space launch and space representing competition for money in non-mainstream Air Force activities. Therefore, a low-key, non-obtrusive path was the prudent one for the non-missile space crowd, which ultimately resulted in limited doctrinal and operational consideration of other roles for space.

Although merely *extending* already established Air Force doctrine might have seemed logical in the 1950's and 1960's, and may have established the now-missing premise for manned military spaceflight, the will to do so simply was not there.

> The problem was that although the Air Force seemed the logical home for space activities for most early proponents, the ethos of the superiority of the 'manned bomber' was already deeply entrenched in the Air Force at its birth, and claimed most of those in command as champions of the claimed fiefdom. This proved a hindrance for any technology system which could claim neither an 'air' or 'pilot' connection. 'Neither the Army not the Navy suffered from the institutional paranoia that paralyzed the Air Force thinking about the maturation of ballistic missiles... The marriage of the atomic bomb to the manned bomber clouded the vision of the Air Force leaders with 'congenital conservatism''. [9]

Bell Aircraft generated some interest within the Air Force hierarchy in the 1950's with a bomber-missile concept, known as BOMI, by arguing that it merely extended the already

established Air Force doctrine into space, but support was limited to a small group of individuals, while the Air Staff remained generally apathetic. In terms of doctrine, missing the window of opportunity to integrate air and space doctrine in the early years has resulted in a much more complicated situation today.

There is, for example, a precursory definitional issue that is concurrently discussed and avoided. Does integration of space into the Air Force mission and culture mean "equality" in the sense that it does two things -- air and space -- equally? Or does integration of air and space take on a more "absolute" meaning; that the Air Force does one thing-- aerospace? Culture is a constraining factor in either case but which goal is actually more difficult is debatable. Near-term "equality" is likely unrealistic if only because space comprises a lesser part of the Air Force budget compared to airpower,[10] with higher consequent hardware and personnel ramifications for the air segment. Absolute integration, however, more significantly intrudes upon the traditional cultural ethos of the Air Force. That makes it a bigger pill to organizationally swallow. Apparently, Air Force leadership is thinking mostly absolute integration, while space operators see the goal as equality, if not eventual independence. That there is no agreement on what is actually meant by integration sets the stage for failure before efforts are even made.

In researching the Japanese space program several years ago I came across two terms which I have found helpful and applicable on a broad basis: *tatemae* and *honne*. *Tatemae* refers to the official reason something is done, whereas *honne* is the "real" reason it is done. A *tatemae* can: encompasses a *honne*, be a pretext for a *honne*, or be a marketing tool for a *honne*. The terms can also be used in the context of intent: the stated

intent versus the real intent. Applying those terms to the case at hand, it is my thesis that organizational culture has and continues to hinder space in its quest for equality within the Air Force. I would suggest that immature technology was a convenient *tatemae* for the cultural reasons which were the *honne* for historical Air Force actions. There is, however, no longer the justification of immature technology. Today, it is organizational structures maintained by cultural preferences that appear to gridlock the status quo, supplanting space in favor of the more traditional air power focus of the Air Force. The Air Force has worked mightily to fulfil the promise and potential of air power, but its focus there has not come without a price in other areas. Further, moving from the Cold War into downsizing has left all branches of the military preoccupied with fighting brush fires from Somalia to Capitol Hill, resulting in tough choices about the future to be put off until some distant tranquil future, or a crisis forces a decision.

LITERATURE REVIEW

The issue being examined here is a multifaceted one, including considerations about the military culture, Air Force culture, and organizational integration. There is important work being done in all of these areas, and I will briefly review some of the most relevant materials as a background for my analysis.

Integration. The *idea* of integration is becoming increasingly attractive to many organizations from both a cost effectiveness and efficiency perspective. The reality of achieving such, however, has proven much more difficult. When a decision to merge or integrate is reached, the managers of the concerned organizations confront the largest stress factor on people, change. According to organizational experts, change of any type can result in people experiencing stress and confusion. "They look for something to hold

on to. They crave security, respect, and empathy even while the business of an organizational change rushes on around them."[11] The idea that change is unsettling is not new. Thomas Kuhn in his seminal 1962 work *The Structure of Scientific Revolutions*[12] was among the first to examine paradigm shifts and the professional crises that can result.

Problems with people, the so-called "soft" or "mushy" issues often ignored or overlooked, are a primary reason why one half to two-thirds of integration efforts fail.[13] Whereas algorithms exist for evaluating the financial compatibility of organizations, how to evaluate the "cultural" fit of organizations is much more tentative. Factors which have been assessed include: (1) philosophy, methods, style, values (2) benefits versus risks (comparing integration models with potential costs such as resistance and turnover) and (3) making time an asset by using the pre-convergence period to test the fit under different scenarios.[14] The first set of factors are the least quantifiable, but perhaps the most important.

Researchers have found what has been referred to as "organizational sickness" may occur in a converged team. Symptoms may include turnover of key people, people refusing reassignment, relocation costs/downtime, post merger performance drops, lost customers/capacity/synergism and finally morale problems. When these symptoms are already occurring within the separate organizations to be merged, the potential for trouble or failure increases.

Further, two further points on the general psychology of integration seem particularly relevant to the discussion at hand. First, it has been found that one of the major challenges for newly merged organizations is developing a single *espirit de corps.* When Chairman of the Board of General Motors (GM), Roger Smith aggressively went

after, and bought, Ross Perot's company, Electronic Data Systems (EDS), the result was a disaster. The organizational cultures were drastically different, with Perot stressing the "family" company, where he set paternalistic rules on everything from dress to expected moral codes, but the rewards and sense of family loyalty were tangible. Smith, on the other hand, was regarded as the least people-oriented executive in America, driven only by numbers. Eventually, all the people in the Perot organization who made it what it was, left, returning to Papa Perot in a new organization which remade itself in its old image.[15]

Creating such *espirit de corps* is essential, and difficult, even within a joint program office. It is especially difficult considering the Not-Invented-Here (NIH) syndrome from which stovepiped organizations often suffer. Characteristic of NIH, any program not originated within an agency/organization is shunned by the organization, to allow it more time, resources, and energy to promote their in-house agendas and creations. In effect, programs become bureaucratic orphans, an unhealthy status at best.[16] In times of downsizing, economic realities are reluctantly faced. There is no motivation for a government agency today to relinquish a program and the accompanying funding. Money sacrificed from one program will not return to the same agency for use on another program with a higher priority. The reduction will evaporate into one of the twin black holes of deficit reduction and entitlements, or more cruelly, be lost to a competing agency. Therefore, budgets are guarded even more protectively.

Another factor that all researchers seem to agree on is that organizational lack of direction, especially for an organization with a large infrastructure, will eventually produce failure. The mere perception of "separate agendas" and "divided loyalties"

exacerbates any existing difficulties in relationships among and between organizations or parts of organizations.

Having reviewed these generalities about integration and the difficulties that can occur, it is then necessary to consider the current state of military culture, evaluating its potential for being amenable to change.

Culture. There are characteristics common to the military tradition which comprise "the military culture." The military has long taken pride in and identified with an image of leadership, ethics, discipline, and teamwork. Their jobs have defined the manner in which they operate, and realistically the job/mission has been to "kill people and break things" when told to by the elected civilian decision-makers. This unique and dangerous military mission demanded a special set of rules of operation. Carrying out the mission without being killed themselves required decisive leaders who inspired trust and fortitude in their troops. Subsequently, as suggested by the following quotation, the military culture of necessity evolved in ways sometimes inconsistent with civilian democratic values.

> Whereas democratic societies embody due process and recognize the value of the individual and the legitimacy of dissent, military organizations are organized as rigid hierarchies that require strict obedience and the subjugation of the individual to the whole. Although the military has, over recent decades adopted many civilian management practices, one need not be an expert to conclude that the Air Force does not look much like the Department of Education.[17]

Certainly differences rather than similarities between civilian bureaucratic propensities and the military culture have predominated in the past, but that is changing to an as yet undefined degree. Moving to an all-volunteer military where individuals are often seeking a primarily peacetime career rather than serving only during times of finite

hostility has in some ways bridged the previous gap. Today's military likely has more bureaucratic characteristics in common with the Department of Education than it did with the largely conscripted military during the Viet Nam War. People are trying to move ahead in a career field, with all the (often negative) implications that brings concerning behavior patterns supporting long-term advancement and support for the status quo.

Whereas other bureaucracies have long been noted and chastised for their ability to shun responsibility in favor of conservative, self-protective leadership and self-perpetuation as an organizational goal, the military has taken pride in its hierarchical leadership and being driven by terminal, externally-driven goals. Leadership, trust in that leadership, and being responsive to externally-driven threats is what fundamentally separated "the military" from "the bureaucracies." If there was a mission, even an unpleasant one, someone was put in charge and that person pushed forward toward a clearly identified end-state. Perhaps because of draw down, perhaps because "the mission" is no longer quite as clear, perhaps because of press scrutiny for potential fraud, waste and abuse which can border on witch-hunts and subsequent intra-service fear of over-zealous accountability, the premise of leadership seems to be under silent redefinition, unfortunately akin more toward traditional bureaucracies, as missions are being redefined.

With the Cold War over, the U.S. military finds itself in the position of having to reinvent itself. Its fundamental mission is to some as yet undefined degree being implicitly, if not explicitly, changed from warfighter to food delivery and military operations-other-than-war (MOOTW). This is exactly the kind of crisis that Kuhn spoke about, though Kuhn was writing about scientists.

> As in manufacturing so in science – retooling is an extravagance to be reserved for the occasion that demands it. The significance of crises is the indication they provide that an occasion for retooling has arrived.[18]

Clearly, the occasion for the military to retool in a variety of ways has arrived. As an organization built on rigid hierarchy, doctrine, rules and dogma, this is not an inherent capability, nor an easy one. Dramatic organizational change and tradition is the antithesis of tradition and seems to reject the very legacies upon which the military is built. This sets up an almost approach-avoidance situation, where marginal adjustments satisfy the acknowledged need for change while protecting the entity as a whole from changes one does not want.

If we then begin with the acknowledgement that the military culture in general is on particularly precarious ground during this Post Cold War era, the problem can then be viewed as one of layered organizational stress. First, there is difficulty with the entire premise that there is a single, coherent, cohesive "military" position or entity. The missions, traditions and very *espirit de corps* of the Army, Navy, Air Force and Marines are vastly different. The Air Force is the most hardware oriented. Airplanes dominate Air Force bases, and it is airplanes which are the point of the spear for the Air Force mission. Beyond inter-service differences, few would argue that intra-service divisions do not exist: Army Infantry, Army Aviation; Naval Aviation, Surface Navy, Submariners; Rated Air Force, Non-Rated Air Force. All these create culture differences that subsequently inhibit integration efforts and exacerbate parochialism.

Further, in a recent article entitled "Is American Military Professionalism Declining?" author Thomas E. Ricks suggests that "partly as a result of the attacks on military culture in recent years, the officer corps has become less professional in its

outlook and behavior."[19] According to Mr. Ricks, the response of the military to attacks, perceived and real, and a growing gap between the military culture and society in general, has been on of retrenchment and politicization to the far political right. He backs these propositions with statistical data gathered by Duke University Professor Ole R. Holsti.[20] Of the Air Force he cites examples of attendance at Bible meetings and morality judgements as being inappropriately equated to past values of military traditionalism.[21] Accepting even part of Mr. Ricks arguments as valid indicates an atmosphere and environment inhospitable to integration.

Finally, in examining the difficulties that the Air Force is having integrating air and space, it is first perhaps both appropriate and fair to point out that the military is not alone is its struggle with that particular field. Education too has long struggled with space both in terms of epistemology and physical accommodation. For example, consider a student starting college who is interested in space.[22] In what department would he/she find space-related classes? Biology might offer some concerning physiological changes that occur in space. Engineering would certainly offer courses on how to build spacecraft. Astronomy and astrophysics would be offered through one of physical sciences department. Satellite applications might be taught through the geography department. The departments of political science and/or history might be involved with teaching the history and policy aspects of space. Sociology or psychology might offer courses on crew selection and interaction on long-duration space missions. And the list goes on. Space courses aren't somewhere, they're everywhere. *But, the problem with something for which everyone shares responsibility, is that no one takes responsibility for it.*

The multidisciplinary nature of space has been an inhibitor for space development, even in the education milieu. There have been several university "space studies" programs initiated, but few that have survived even birth.[23] Universities are with few exceptions inherently stove-piped organizations, divided into "colleges" and then "departments" carefully defining academic turf and accompanying budgets. Because space does not neatly fit into one college, let alone one department, it is difficult to gather support for it as an interdisciplinary program, especially if there is money to be divided. And those interdisciplinary programs which exist and do well are usually funded by one college, where a Dean can champion the program with both support and college funds. Space classes, however, transcend one college into several, the result of which is that a "lead" must be named, with others quickly dropping by the wayside to a large extent. In many of these attempts at interdisciplinary programs, there is little or no incentive to participate for a greater good. And culture is a factor too. Rarely will you find an engineer comfortable or even willing to work with a political scientist, a historian with an astrophysicist, a robotics expert with an anthropologist, etc..[24]

If one uses education and the university experience as an analogy, it is easy to imagine how "space" has had similar problems of integration and incorporation within the military. The military is another stovepiped organization which, recognizing the negative aspects of stovepiping, seeks to change its ways but is finding theory easier than fact. Breaking down stovepipes is inherently difficult because it disrupts the status quo, always the safest and most comfortable route for bureaucracies to pursue.

RAND has been working on a project since 1996 specifically focused on development and implementation of a strategy for integrating space capabilities into Air

Force and joint military operations. Called Project AIR FORCE, it is under the sponsorship of the Assistant Deputy Chief of Staff for Air and Space operations and co-sponsorship of the Commander, Space and Missile Systems Center (SMC/CC0, COMAFSPACE and Fourteenth Air Force Commander, and the Director of Plans, Air Force Space Command (AFSPC/XP). It is likely through their efforts that the most promising organizational opportunities for change will be identified. It is also likely that the ones most likely to succeed will be those which "tweak" rather than revolutionize.

SPACE EDUCATION WITHIN AIR FORCE PROFESSIONAL MILITARY EDUCATION (PME): A MINIATURE WORLD

The 1992 Air Force Blue Ribbon Panel on Space recommended that "The Air Force should make integrated aerospace employment a fundamental principle in all training and education programs." The 1997 Air Force Long Range Plan envisioned an end state by between the years 2000-2005 where "all personnel are educated and all operators trained to exploit air and space assets in an integrated manner." To that end, the Air Force was tasked to develop an "Air and Space Basic Course" to be taught to all new officers and certain civilians. The class is to cover doctrine, use of space-based assets, integrating space into an air war and current educational space activities.[25] The validation class for that course was run during the summer of 1998. The problem is that there is very little space doctrine to be taught, that focusing on integrating space into an air war limits consideration of space as an operational medium, and *de facto* means that space is "taught" as descriptions of systems.

Some who follow this issue, including Air Force Major Jim Wolf, earlier questioned the basis for putting together such as course.

> But what exactly will be taught there? I've already said we lack a good intellectual foundation for spacepower or integrated aerospace power. Our new

> doctrinal manual, A.F.D.D.-1 will certainly be part of the curriculum but, like everything the Air Force has done up to now, it can better be described as "Airpower Plus than Aerospace Power Doctrine.[26]

Establishment of an intellectual foundation for integration is certainly part of changing a culture. Major Wolf, however, has expressed concern as to whether that intellectual foundation is being seriously undertaken. He cites two notable forthcoming efforts in the area of doctrine. The first is a work by Dr. Brian Sullivan called "Spacepower Theory," sponsored by USCINCSPACE. The other is through the School for Advanced Airpower Studies at Maxwell AFB, AL. It evidently has been underway for some time. As Maxwell is the premier center of Air Force PME, one might expect that significant attention is spent on "intellectual foundation" issues there. Major Wolf, however, points out that "the silence from Maxwell is a bit deafening."[27]

Using the Air War College (AWC) at Maxwell AFB, the Air Force's Senior PME, as an imperfect microcosm involving both space and the military, one finds the problem well illustrated. There is traditionally one Air Force colonel on the faculty designated as the Space Chair, assigned to that position through Air Force Space Command. Although in the recent past those individuals have been highly qualified space systems experts, the position might also filled by a missiler since that group was folded into Space Command in 1994. Beyond the Space Chair, between one and four additional individuals with some varying degrees of knowledge or expertise in space may be on the faculty, and this comprises the "space faculty". The question of how to integrate space into the AWC's 10 month core curriculum, utilizing this space faculty, has been discussed for at least the past five years.[28]

There appear to be two general models for consideration: integrate the space faculty into the various academic departments where, theoretically, the information which they bring will be incorporated into the material offered by these departments, or; separate the space faculty into a distinct unit.[29] Variations on the first have been tried repeatedly. The result has been not that the space expertise of the individuals is incorporated into the various departments, but that they end up primarily teaching non-space-related classes. The role of the individuals as space experts is overwhelmed by the multitude of other concerns and issues that the departments deal with, and the idea of incorporating space material into the curriculum falls into obscurity. Understandably, departments have more material to cover than time to cover it, and space ends up simply competing with other interests for attention.

Subsequently, the Space Chair *de facto* develops whatever material about space is included in the core curriculum, primarily as a module inserted within the study of other forces and capabilities. There it often appears to the class as a separate, unrelated assortment of information of little interest or relevance to those beyond Space Command. It also puts considerable pressure and responsibility onto one individual for space education and indirectly for integration efforts that have been rhetorically championed by all within the Air Force.

Clearly, the position of Space Chair at the AWC is an important one in the overall scheme of integrating space into Air Force culture and consideration at the senior leadership level. Yet the individuals who have assumed the position seem neither to be particularly groomed for it in advance, nor have the career paths of recent O-6 Space Chairs reflected an acknowledgement of their contribution through desirous follow-on

assignments. The career paths for these individuals has been to stay on after being members of the Air War College class, and then retire from the job. Indeed difficulties with assignments from the Space Chair position even resulted in not being able to get an O-6 for the job in 1997-98, and securing an O-5 for the position only with assurance that it would be a one year assignment. Rhetorical support for air and space integration does not seem to translate into career support for the Space Chair position.

The AWC Space Chairs seem not to be alone in their plight. Further evidence of the quandary that space personnel generally find themselves within the Air Force is insightful. In a paper setting out his views concerning the need for a dedicated space force, Col. Vic Budura, former Space Chair at the AWC, cites a research paper done by Lt. Col. Tom Clark (who later served as AWC Space Chair) as an AWC student.[30]

> It is probable that the first commander of The Next Force (circa 2025) will be a young lieutenant in the first class of the Air Space Basics Course in 1999. He or she will cut their teeth on the Space Systems Exploitation Exercise taking the first serious stab at teaching Space Campaign planning.
>
> These thoughts may be misguided optimism if the trends reported in Col (S) Tom Clark's RWO remain constant. In Chapter 2, Tom questions the apparent disconnect between the process the Air Force used to pick its space leaders from what it uses to pick its air leadership. If we are serious about transitioning to a Space and Air Force then two questions need answers; first, "who leads the current space forces" and second "who will lead the future space forces"? To answer the first question, Tom did a survey of *space experience* of the space leadership in the Air Force Space Command (AFSPC) and compared the data with a similar analysis of *flying experience* in the senior leadership at Air Mobility Command (AMC). What he found was a wide gap in functional operational experience from 14 percent in AFSPC to 90 percent in AMC. The good news is that those chosen to lead in AFSPC had a broader experience base than their AMC counterparts, but still the space mission operational experience ranked last, and most of that was actually staff time rather than *stick time.*

The message to Air Force space operators in terms of organizational culture comes through loud and clear. Problems are subsequently generated for both the present and the future as operators read the career handwriting on the wall and opt to leave the military for jobs in the private sector offering better advancement opportunities, as well as personal appreciation.

Returning to the issue of space education at the Air War College, the second option for integrating space into the core curriculum through the space faculty, e.g. separating those individuals with a space expertise into a cohesive unit, has not been tried under the assumption that a first step toward integration is not separation. That is, there has been the concern that if the space faculty were separated into a distinct body, they would become isolated. Indeed one may make an analogy with Space Command being separated from the rest of the Air Force as a negative example in support of rejecting this second scenario.

It has also been argued, however, that they are already tacitly isolated under the current configuration of being buried within departments. Clustering the faculty expertise does not have to inherently lead to an isolation of the material. Quite the contrary, if the space faculty were tasked with creating space-related Instructional Periods[31] throughout the curriculum, in a manner consistent and seamless with the other material being taught, space could be better integrated into the curriculum, and the mindset of those 200+ officers ready to leave for staff jobs.[32] What that would likely require, however, is that space be explicitly considered a key consideration within the PME curriculum, if necessary through a kind of affirmative action program for space mandated through the Air Education and Training Command (AETC). However, that would require a reduction

of some of the more traditional foci of the program, including air power, which the students, the majority of the faculty, and the administration clearly favor.

Having the space portion of the core curriculum offered primarily within one department as a module, as is currently done, heightens the prospect that space will be "taught" without a context to give it meaning within the larger scope of national security considerations. Indeed teaching operational space systems before the audience understands the strategic legal and political parameters within which space systems are both developed and operated can be likened to teaching brain surgery before one understands the fundamentals of anatomy. There is also the corollary issue of what constitutes "teaching" space, with a compendium of marketing pitches from individual stovepipes being the primary method employed most recently. Earlier attempts were made by Space Chairs to "teach" space in a more substantive manner, but met with resistance. Many faculty with no space background were uncomfortable leading seminars in an area they were unfamiliar with, and stovepipes welcome and often actively seek opportunities to pitch their mission. But offering these non-contextual marketing pitches can result in the learning experience of the class being significantly decreased, if only through their lethargy if not outright negativism. When this experience is thrust upon individuals already coming from differing cultural perspectives, it is understandable that the culture gap is not narrowed, but potentially widened.

AWC Departmental Curricula

The AWC is divided into five departments: Future Conflict Studies (DFC); Strategy, Doctrine and Airpower (DFS); International Security Studies (DFI); Leadership and Ethics (DFL); and Joint Force Employment (DFW). In a survey conducted regarding

the 1997-98 curriculum, during which time (4) faculty members with some space expertise taught in all departments but DFS, the following was found.[33]

- DFC, 12 IPs were taught: 5 contained 15% or less material on space, plus 1 at 100%.
- DFS, 25 IPs were taught: 0 contained any material on space.
- DFI, 16 IPs were taught: 0 contained any material on space.
- DFL, 38 IPs were taught: 7 contained 20% or less material on space, 1 at 70% and 3 at 100%.
- DFW, 36 IPs were taught, 5 contained 10% or less material on space, 4 between 15-25%, 1 at 50%, and 10 at 100%.

It is important also to point out that the material covered in one department is not necessarily coordinated with what is being taught in others. More likely, it is a topic being presented by an outside speaker with little or no idea what has been covered before or what will be covered later on space. Although bringing people in from the outside, as is primarily the case for space speakers to the AWC class, certainly enhances the opportunities for broad expertise to be shared, it also heightens the risk of repetition, public relations level briefings and out-of-context briefings.

Again, if integration of air and space, and then transitioning to a space and air force is really the *honne* as well as the *tatemae* of the Air Force, then a more aggressive approach will be required to actually accomplish such. At the educational level, this means moving beyond what is culturally comfortable and favored to what might be a very unsettling level. At a larger level, although great strides may forced by combining commands (a suggestion being studied by the RAND team), these are perceived as drastic and painful measures, and still do not get to the organizational culture issues that

undermine the problem. Hence, they may be little more than hair-shirt efforts staged for presentation before returning to business as usual. Returning to the two models of integrating space faculty at the Air War College, combining commands may be analogous to the first model where the result is to overwhelm a smaller group rather than integrate it. Clearly, there is no easy answer.

MOVING BEYOND RHETORIC

A few years ago at a space conference in Washington, D.C., I had an opportunity to hear a former NASA Administrator answer a question concerning what would it take to get America back on a serious track toward manned space exploration. His answer was emphatic. He felt that it would take a significant event on the magnitude of *Sputnik*, having the Japan or some other country offer lunar flights, or a major resource discovery in space. Short of that, he felt, the status quo would prevail.

Col. Budura, in his paper, wrote:

> A few years ago, this author had the opportunity to engage a senior Air Force leader on the topic of a future space force. He was very firm in his conviction that it would only happen as the result of a "*significant emotional event*" like the advent of the atomic bomb and its use in warfare.[34]

Although probably not the answer sought, the judgment reflected in both cases above, that of "not without a major impetus," is also a realistic assessment of how likely a change from the status quo is regarding integration of air and space forces. Without some major impetus, the Air Force will continue utilizing an evolution model, a slow evolution model, with rhetoric outpacing action.

A less-than-optimistic assessment that the Air Force is neither willing to support a separate space force nor willing to step up to the challenge of integration has been made by others, and the potential dangers of such a course recognized.

> But mostly I think the Air Force is fast approaching the time when we need to fish or cut bait. Or, more accurately, be told to cut bait. In fact, if we're not careful, there's a fate worse than death in all this.
>
> Losing space to a new service might be bad enough. But it might be worse to end up as a mute force provider, responsible to fund and field new space systems as dictated by USSPACECOM's or O.S.D.'s doctrine and requirements – sort of a glorified Materiel Command for Space without any operational influence. That could happen if we continue to kick the hard decisions down the road.
>
> I would characterize our air and space integration efforts to date as attempts to polish and repair the surface veneer so that we look good to the outside world – and even, perhaps, to ourselves – to have our act together. Meanwhile, we are, at heart, an airpower force without much common understanding of what it means to integrate space and air, and apparently without much real will to do so.[35]

Ironically, one factor that could serve to accelerate the integration process is the increasingly divergent views about integration between the Air Force and USSPACE. Information operations is also a wildcard, as it is in that area that opportunities for a non-traditional operational "crisis" are likely highest.

Short of a crisis though, the time is not propitious to expect meaningful integration efforts beyond those marginal steps RAND might suggest to make maintenance of status quo methods of operation more efficient. The environment is simply not conducive. It is easier to change procedures and wiring diagrams than culture.

If one believes that history foretells the future, it took 30 years for the Army to stop resisting the separation of the air corps to a service of its own. Retrospectively, one

wonders if that separation wasn't inevitable all along. It has now been 30 years since military space capabilities emerged as a link in the national security chain. Perhaps the time to create a new United States Space Force will soon be recognized, and then, retrospectively, it too will be seen as always inevitable.[36] In the meantime, evolution will substitute for revolution, and there will be no magic bullet, and no quick fix to substitute for time. The question is, will there be enough time for evolution to take place, or will personnel attrition, technological advancement, and/or external decisions make evolutionary changes moot. This returns the analysis to Major Wolf's comment about a "fate worse than death." Putting off decisions in favor of rhetoric may indeed result in losing the ability to decide one's own fate.

Doing nothing is a policy decision in itself, one that the Air Force has assiduously avoided. There has been a flurry of activity indicating aspirations toward integrating air and space. But past experience concerning military culture and parochialism, concerning integrating a multidisciplinary field such as space into already established stovepipes, concerning patterns of behavior of large organizations during times of general redefinition and downsizing, all show that the indicators for show-stopping "soft" inhibitors are present and proliferating, rather than abating. Therefore, rhetoric will prevail over meaningful action, through no necessarily nefarious intent. Under these circumstances, it is not hard to understand how the "space mafia," as those within Air Force Space Command are sometimes referred to, could become ethnocentric or defensive. It is to their credit that through this painful process of what will likely in future years be seen as "birth" they remain consummately loyal, proud and fight to maintain their position as members of the Air Force team.

[1] Dwayne A. Day, "Invitation to Struggle: The History of Civilian-Military Relations in Space," *Exploring the Unknown, Vol. II: External Relationships,* ed. John M. Logsdon, NASA History Series, NASA SP-4407, 1996, 243. See also: Carl Builder, *The Icarus Syndrome* (New Brunswick, NJ: Transaction Books, 1994).

[2] Frank Sietzen and Simon Mansfield, "Air Force Claims Space 'As Our Domain'", *Spacecast,* Washington, DC, 15 November 1997, www.spacer.com/spacecast/news/milspace-97e.html.

[3] Robert Holzer, "Pentagon Views Space As Next Theater of War," *Space News,* 5 May 1998, 28.

[4] Sietzen & Mansfield.

[5] Whether there ought to be a space area of responsibility in the sense of a unified command similar to special forces is a hotly debated issue in itself. Although USSPACE has been an advocate, others (including all three services) have opposed such a move.

[6] The term "aerospace" is not new. It was used by pioneer Air Force space advocates seeking to expand the Air Force culturally and pragmatically by linking the air and missile parts of the Air Force as encompassing one continuous vertical dimension.

[7] Roy F. Houchin, "The Dyna-Soar Program: Why the Air Force Proposed the Syna-Soar X-20 Program," *Quest: The History of Spaceflight Magazine,* (Winter 1994) 3:10.

[8] David N. Spires, *Beyond Horizons: A Half Century of Air Force Space Leadership,"* Air Force Space Command, Petersen AFB, CO, 1997, 19.
[9] Roger Handberg and Joan Johnson-Freese, "The return of the American military to crewed spaceflight: hypersonic and other visions," *Space Policy,* November 1997, 296; quote from M.R. Terry, "The Janus Complex: Origins of USAF Manned Military Spaceflight." Paper presented at the Annual Society of Military History," Montgomery, AL April 1997, 7.
[10] Not only is relative size evidenced by budget, but by structure as well. Less than 10% of the total number of active duty, major command wings listed in the *Air Force Magazine* 1998 Almanac were space rather than air related, May 1998, 74-97.
[11] John Iocovini, "The Human Side of Organizational Change," *Training and Development,* January 1993, 65.
[12] Thomas S. Kuhn, (Chicago: University of Chicago Press, 1962).
[13] R. M. Fulmer and R. Gilkey, "Blending Corporate Families: Management and Organization Development in a Postmerger Environment," *The Academy of Management EXECUTIVE,* Col 11, No. 4, 1989, 275.
[14] Mitchell L. Marks and Phillip H. Mirvis, "Rebuilding After the Merger: Dealing with Survivor Sickness" *Organizational Dynamics,* Autumn 1992, 18-32.
[15] As conveyed by Roger Smith's former speechwriter, Albert Lee, in *Call Me Roger,* (Chicago,IL: Nightingale-Conant Audio Book, 1988).
[16] Joan Johnson-Freese and Roger Handberg, "NASP As An American Orphan: Bureaucratic Politics and the Development of Hypersonic Flight," *Spaceflight,* March 1991.

[17] Kenneth R. Mayer and Anne M. Khademian, "Bringing Politics Back in: Defense Policy and the Theoretical Study of Institutions and Processes, " *Public Administration Review,* March/April 1996, 181.
[18] Kuhn, 76.
[19] Thomas E. Ricks, "Is American Military Professionalism Declining?" *Proceedings,* July 1998, 26.
[20] Ricks, 27.
[21] Ricks, 28.
[22] Starting the analogy at the college levels skips an entire set of issues at the elementary and secondary level too expansive for coverage here, but which have been the focus of extensive study.
[23] The International Space University, headquartered in France, has been a noteworthy exception. It is a multidisciplinary, multicultural university focused on space. There are also graduate programs housed within departments at various universities that have been successful.
[24] For a look at the difficulties with even getting the science and engineering communities to work together, see: Joan Johnson-Freese & George Moore, "Clash of the Titans: Competing Space Policy Goals," *Nature,* 2 December 1993.
[25] Mark Walsh, "USAF Targets Control in Air, Space," *Defense News,* 21 April 1997, 12.
[26] Major Jim Wolf, "The Space Piece of Air and Space Power," talk presented at RAND on 9 March 1998, Major Wolf at that time was with Air Force Strategy, Concepts & Doctrine Division, (AF/XOCD) 15.
[27] Wolf, 9.
[28] Overlaying the question of how to integrate space into the curriculum at the AWC is the question of how to integrate space into the general Air Force PME system. For the purposes of this discussion, however, focus will be on the AWC.
[29] In the course of interviews conducted, it was suggested that these two models are repeatedly considered at the Air Staff level as well. Apparently, the pendulum there has swung several times between concentrating and dispersing space expertise, so far without satisfactory results either way.
[30] Col. Victor Budura, "The Next Force," Core Curriculum Readings, Future Conflict Studies, Air War College, August 1998, 404-410.
[31] Lessons within the departments are divided into units called Instructional Periods (IP), which include either a lecture or a seminar discussion of a topic, or both.
[32] Obviously the argument can (and should) be made that the earlier in the PME process this occurs the better.
[33] Space Program Advisory Group (PAG) Report to AU/XO, 1 May 98.
[34] "The Next Force," 8.

[35] Major Jim Wolf, 18.
[36] Daniel Graham, "Establish U.S. Space Force/New Service Is Next Step in Military Evolution, " *Defense News,* 12 September 1994, 32.